

Matthew Pruis

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Education:

B.S. Applied Geophysics (summa cum laude), Michigan Technological University, 1995.
M.S. Oceanography (Marine Geology and Geophysics), University of Washington, 1998.
Ph.D. Oceanography, University of Washington, 2004.

Professional Experience:

NorthWest Research Associates, Redmond, WA – Research Scientist, 3/04-Present.
Central Washington University, Ellensburg, WA – Lecturer, 1/08 – 6/08.
Yakima Valley Community College, Yakima, WA – Lecturer, 11/05-4/06.
Technical University of Denmark, Lyngby, DK – Visiting Scientist, 4/04-11/04.
NorthWest Research Associates, Inc., Bellevue, WA – Support Scientist, 4/97-3/04.
University of Washington, Seattle, WA – Teaching/Research Assistant, 6/95-5/98, 6/00-3/04.
United States Geological Survey, Flagstaff, AZ – NASA (Undergraduate) Fellow, 4/94-7/94.
Michigan Technological University, Houghton, MI – Teaching Assistant, 1/94-4/94.

Research Interests:

Dr. Pruis received his doctorate degree in 2004 and has worked at NWRA since 1997. Dr. Pruis has experience in data analysis, turbulence and mixed layer processes, and data-model comparison studies. He has worked on projects ranging from studies of the near-shore coastal environment, to deep-sea hydrothermal vents, to sea-ice modeling and field projects in the Arctic, to aircraft wake vortices.

Recent and Current Research Grants and Contracts:

Wake Vortex Data Collection for Robust Modeling Validation to Enable Advanced, NextGen, Wake-Conscious, Capacity-Enhancing Concepts, 9/29/11 – 9/30/15, Principal Investigator: Don Delisi (NWRA), Co-Is: David Lai and Matt Pruis (NWRA). Award amount: \$6,000,748. Funded by NASA Airspace Systems. Contract number: NNL11AA13C.

Field Verification of ice production from continuous and discontinuous motion, 7/15/06 – 6/30/09, Principal Investigator: Max Coon (NWRA), Co-I: Matt Pruis (NWRA). Award amount: \$276,044. Funded by National Science Foundation Office of Polar Programs Arctic Natural Sciences Program. Grant number: ARC-0612402.

Argus video beach monitoring: Mapping the nearshore near the mouth of the Columbia River – North Head, WA, 7/1/05 – 9/30/08, Principal Investigator: Joan Oltman-Shay (NWRA), Co-I: Matt Pruis (NWRA). Award amount: \$473,551. Funded by United States Army Corps of Engineers. Contract number: W9127N-05-F-0135.

Oriented fracture patterns and frazil/pancake ice formation: A new basin scale model of sea ice dynamics, 5/25/04 – 8/20/08, Principal Investigators: Max Coon and Matt Pruis (NWRA) and Ron Kwok (JPL), Co-Is: Deborah Sulsky and Buck Schreyer (UNM) and Leif Toudal (DTU). Award amount: \$1,075,000. Funded by Mineral Management Services and NASA. Contract number: NNH04CC45C.

Teaching and Outreach Activities:

Spring, 2008	Lecturer, GEOL302 – Ocean and Atmospheres (30 students). Field trip involved cruise on Puget Sound where students performed hands-on activities. Funding for field trip provided by the Ocean Inquiry Project and Central Washington University Continuing Education Department.
Winter, 2008	Lecturer, PHYS181Lab and PHYS182Lab - calculus-based Physics labs (36 students total).
Summer, 2007	Led a unique student outreach project. After learning about current research activities at NWRA, senior-level physics students at Nathan Hale High School in Seattle submitted their own independent research proposals to work with the sea ice researchers at NWRA. Two student team projects were awarded and the students worked at NWRA while they completed their research projects. Three high school teachers were also hired as consultants to work on the project. Project described by an NSF program manager as “exceptional and should be used by NSF as a model for creative educational outreach.” A publications detailing the project is in <i>Science Teacher</i> .
Winter, 2006	Lecturer, introductory algebra courses (63 students total, 2 courses)
Spring-Fall, 2004	Visiting Scientist at Technical University of Denmark
Spring, 2003	Assisted in organizing and leading field excursion for the Europa Focus Group Arctic Ice Field Conference, Barrow, Alaska, April 24-26, 2003.
Spring, 2003	Wrote an online science journal which was published as four lead articles by the Astrobiology Magazine and picked up by Space.com and NASA Ames. (http://www.astrobio.net/news/article459.html)
Spring, 1998	Developed an on-line magnetism tutorial used by the Discovery Channel® School's <i>Understanding: Physics in Motion</i> program.
Winter, 1997	Teaching Assistant, OC202 - Physical Oceanography (44 students).
Fall, 1996	Coordinator of the <i>MaGIC</i> web site that allowed grade school classes to interact with scientists aboard the <i>R/V Thomas G. Thompson</i> . (http://www.ocean.washington.edu/education/magic/index.html)
Winter, 1994	Teaching Assistant, GE204 - Environmental Geology (26 students).
1992-1995	Mathematics Tutor, peer tutored 72 (total) students, 000-400 level.

Totals for teaching experience:

Central Washington University: 2 calculus-based Physics Labs, Ocean and Atmospheres (2008)
 Yakima Valley Community College: 2 introductory Algebra courses (2006)
 University of Washington: Physical Oceanography, teaching assistant (1997)
 Michigan Technological University: Environmental Geology, teaching assistant (1994)

Student mentoring: Employed 4 undergraduates and 5 high school students since 2004.

Other Service:

Reviewer for the Journal of Geophysical Research, Geophysical Research Letters, Earth and Planetary Science Letters, Bulletin of the American Meteorological Society, International Journal of Remote Sensing and the International Geoscience and Remote Sensing Symposium. I have peer reviewed 16 journal articles since 2004.

Reviewer for the National Science Foundation and NASA. I have reviewed 50 proposals since 2004.

Panelist for NSF in 2007.

Member of NWRA 401k advisory and Carbon Footprint Committees.

Field Experience:*Polar Experience:*

1 Apr - 15 Apr 2007 *APLIS 2007.* Co-Investigator on the RIDGE project which participated in the APLIS 2007 ice camp in the Beaufort Sea. Deployed 11 GPS ice tracking buoys. Performed experiments on ice growth and brine rejection following the formation of new ridges in young sea ice. Surveyed and measured bending cracks in sea ice. PI: Max Coon. Co-I: Matt Pruis. Chief Scientist: J. Hutchings.

Sea-going Experience:

28 Aug - 23 Sep 2002 *R/V ATLANTIS / JASON II.* 21 Jason dive days (Dive watch leader). Coring operations. Cruise to several off-axis seamounts, Axial seamount and the Endeavour segment, Juan de Fuca Ridge. Astoria-Newport. Chief Scientist: H. P. Johnson.

17 Jun – 03 Jul 2001 *R/V THOMAS G. THOMPSON / JASON.* 15 Jason dive days (Dive watch leader). Cruise to the Endeavour segment, Juan de Fuca Ridge. Seattle-Seattle. Co-Chief Scientists: H. P. Johnson and S. Hautala.

27 Sep – 08 Oct 2000 *R/V THOMAS G. THOMPSON / JASON.* 10 Jason dive days. Cruise to the Endeavour segment, Juan de Fuca Ridge. Seattle-Newport. Co-Chief Scientists: H. P. Johnson and S. Hautala.

27 Sep - 15 Oct 1997 *R/V ATLANTIS / ALVIN.* 15 Alvin dives (1 dive; stbd). Cruise to Juan de Fuca and Gorda Ridges, and four DSDP drill holes. Astoria-Astoria. Co-Chief Scientists: H.P. Johnson and K. Becker.

01-20 Sep 1996 *R/V THOMAS G. THOMPSON / JASON / ABE.* 10 Jason dive days. Cruise to the Juan de Fuca and Gorda Ridges. Seattle-Seattle. Co-Chief Scientists: H.P. Johnson and M. Tivey.

26 Aug - 10 Sep 1995 *R/V ATLANTIS II / ALVIN / ABE.* 13 Alvin dives (2 dives; stbd). Cruise to Juan de Fuca Ridge. Astoria-Astoria. Co-Chief Scientists: H.P. Johnson and M. Tivey.

Land/Near-shore Experience:

28-29 Mar 2002 *R/V THOMAS G. THOMPSON.* Coring. Cruise to several sites in Puget Sound. Seattle-Seattle. Chief Scientist: H. P. Johnson.

17-19 Oct 2001 *R/V THOMAS G. THOMPSON.* Coring. Cruise to several sites in Puget Sound. Seattle-Seattle. Chief Scientist: H. P. Johnson.

29 May – 02 Jun 2000 *Copalis Beach, WA.* Deployment and recovery of five autonomous near-shore (<3 m depth) wave and current meters. Principle Investigator: J. Oltman-Shay.

- 12 Sep - 25 Oct 1998** *Duck, NC.* Deployment and recovery of 2 alongshore and 1 cross-shore cabled arrays of sensor packages (total of 22 packages) in depths of up to 6.5 m at the Army Corp of Engineers Field Research Facility.
Principal Investigator: J. Oltman-Shay.
- 24 Apr - 01 May 1998** *Copalis Beach, WA.* Deployment and recovery of seven cabled near shore (<3 m depth) wave and current meters. Principle Investigator: J. Oltman-Shay.
- 16 - 22 Aug 1997** *Copalis Beach, WA.* Deployment and recovery of three cabled near shore (<3 m depth) wave and current meters. Principle Investigator: J. Oltman-Shay.
- 07-21 Oct 1994** *Calumet, MI.* Seismic refraction survey for Great Lake Mining Co.
Supervisor: J. Diehl.
- 01 Jul - 31 Aug 1994** *Juneau Icefield, AK.* Seismic reflection experiment. Principle Investigators: M. Miller and K. Sprende.

Totals for field experience:

8 Land/Near-shore research programs; 6 Deep-water Research Cruises; 1 Polar program; Obsvr. on 3 submersible dives; 2 Research Cruises using a deep-diving submersible; 4 Research Cruises using a ROV; 2 Research Cruises using an AUV; 2 coring cruises.

Certifications:

NWRA Scientific Diver, NASDS O/W and Drysuit SCUBA, Emergency O₂ First Aid, CPR, UW Forklift Operator

Professional Associations:

Society of Exploration Geophysicists, American Geophysical Union, NWRA Scientific Diving Control Board, Oceanography Society, Geological Society of America.

Publications:

- 2011 Hautala, S., H. P. Johnson, M. Pruis, I. García-Berdeal, T. Bjorklund, Low-Temperature hydrothermal plumes in the near-bottom boundary layer at Endeavour Segment, *Oceanography*, accepted.
- 2011 Pruis, M. J., and D. Delisi, Comparison of Crosswind Velocity Profile Estimates Used in Fast-Time Wake Vortex Prediction Models, 49th AIAA Aerospace Sciences Meeting, AIAA-2011-1002, Orlando, FL, Jan. 4-7.
- 2011 Pruis, M. J., and D. Delisi, Correlation of the Temporal Variability in the Crosswind and the Observation Lifetime of Vortices Measured with a Pulsed Lidar, 3rd AIAA Atmospheric Space Environments Conference, AIAA-2011-3199, Honolulu, HI, June 27-30.
- 2011 Pruis, M. J., and D. Delisi, Comparison of Ensemble Predictions of a New Probabilistic Fast-Time Model and Lidar Observed Vortex Circulation Intensities and Trajectories, 3rd AIAA Atmospheric Space Environments Conference, AIAA-2011-3036, Honolulu, HI, June 27-30.

- 2011 Pruis, M. J., and D. Delisi, Assessment of Fast-Time Wake Vortex Prediction Models using Pulsed and Continuous Wave Lidar Observations at Several Different Airports, 3rd AIAA Atmospheric Space Environments Conference, AIAA-2011-3036, Honolulu, HI, June 27-30.
- 2008 Englert, K., B. Coon, K. Englert, and M. Hinckley, and M. Pruis, Arctic research and writing: a lasting legacy of the International Polar Year, *Science Teacher*, January, 2009.
- 2008 J. Hutchings, C. Geiger, A. Roberts, J. Richter-Menge, M. Doble, R. Forsberg, K. Giles, C. Haas, S. Hendriks, C. Khambhamettu, S. Laxon, T. Martin, M. Pruis, M. Thomas, P. Wadhams, J. Zwally, Exploring the role of ice dynamics in the sea ice mass balance, accepted by Eos.
- 2007 Coon, M., R. Kwok, G. Levy, M. Pruis, H. Schreyer, D. Sulsky, AIDJEX assumptions revisited and found inadequate, *Journal of Geophysical Research*, 112(C11), C11S90, doi:10.1029/2005JC003393.
- 2006 Pruis, M. J. and M. D. Coon, Forecasting the ice edge and ice types in the marginal ice zone, *ISOPE-2006*, San Francisco, CA.
- 2004 Pruis, M. J. and H. P. Johnson, Tapping into the sub-seafloor: examining diffuse flow and temperature from an active seamount on the Juan de Fuca Ridge, *Earth Planet. Sci. Lett.*, 271 (3-4), 379-388.
- 2003 Johnson, H. P. and M. J. Pruis, Fluxes of fluid and heat from the oceanic crustal reservoir, *Earth Planet. Sci. Lett.*, 216 (4), 565-574.
- 2003 Coon, M. D., M. J. Pruis and L. Toudal. Interannual variability of ice production in the Bering Sea, *IGARSS*, Anchorage, AK.
- 2003 Johnson, H. P., J. Baross, T. Bjorklund, W. Brazelton, J. Huber, M. Johnson, M. Pruis, S. Lang, E. McCroskey, M. Mehta, A. Bowen, J. Howland, D. Butterfield, W. Martin, K. Roe, C. Channing, C. Kammerer, R. Light, V. Miller, M. McCarthy, W. Moore, M. Sharma and J. Voight, Probing for life in the ocean crust, *EOS*, Trans. AGU, 84(12), 109-116.
- 2002 Pruis, M. J. and H. P. Johnson, Age dependent porosity of young upper oceanic crust: Insights from seafloor gravity studies of recent volcanic eruptions, *Geophys. Res. Lett.*, 29 (5), 10.1029/2001GL013977. [cited by *Economic Geology* as an interesting paper published in other journals.]
- 2002 Johnson, H. P., S. L Hautala, M. A. Tivey, C. D. Jones, J. Voight, M. J. Pruis, I. Garcia-Berdeal, L. A. Gilbert, T. Bjorkland, W. Fredricks, J. Howland and the Thermal Grid Scientific Party, Survey studies hydrothermal circulation on the Northern Juan de Fuca Ridge, *EOS*, Trans., AGU, 83 (18), 73,78-79.
- 2001 Johnson, H. P., R. P. Dziak, C. R. Fisher, C. G. Fox and M. J. Pruis, Earthquakes' Impact on Hydrothermal Systems May be Far-reaching, *EOS Transactions, American Geophysical Union*, 82(21), pages 233, 236.

- 2000 Johnson, H. P., M. J. Pruis, D. Van Patten and M.A. Tivey, Density of upper oceanic crust from seafloor gravity measurements, *Geophys. Res. Lett.*, 27 (7), 1053-1056.
- 1998 Pruis, M. J. and H. P. Johnson, Porosity of very young oceanic crust from seafloor gravity measurements, *Geophys. Res. Lett.*, 25 (11), 1959-1962.

Technical Reports:

- 2011 Delisi, D. P., M. J. Pruis, Software Development Plan, Deliverable 4.35, NWRA-SEA-11-R436/R1.
- 2011 Delisi, D. P., M. J. Pruis, Draft Data and Sensor Requirements Report, Deliverable 4.2, NWRA-SEA-11-R434.
- 2011 Pruis, M. J. and D. P. Delisi, Draft Sensor Assessment Report, Deliverable 4.4, NWRA-SEA-11-R433.
- 2011 Piper, L. E., M. J. Pruis, and D. P. Delisi, Draft Meteorological Sensor Credibility Report, Deliverable 4.6, NWRA-SEA-11-R435.
- 2001 Pruis, M. J. and F. Smith, Sensor Package Hardware Design, BPS Technical Documentation, Vol. 4a, *NWRA-CR-00-R222*, 71 pp.
- 2001 Pruis, M. J. and M. Horgan, Sensor Package Calibration and Field Operations, BPS Technical Documentation, Vol. 5, *NWRA-CR-00-R222*, 38 pp.

Abstracts and Presentations:

- 2011 Pruis, M. J., Development of a New Probabilistic Wake Vortex Prediction Model, WakeNet3-Europe Specific Workshop on Operational Wake Vortex Models, Université catholique de Louvain, Louvain-la-Neuve, Belgium, 7-8 November.
- 2011 Pruis, M. J., Update on NASA Probabilistic Model, WakeNet USA, Denver, CO, 18-19 October.
- 2011 Pruis, M. J., A New Probabilistic Fast-time Wake Vortex Prediction System, NASA Airspace Systems Program Technical Interchange Meeting, San Diego, CA, 29-31 March.
- 2011 Pruis, M. J., Update on NASA Probabilistic Model, WakeNet USA, Miami Springs, FL, 16-17 March.
- 2010 Pruis, M. J., Status of NASA's Probabilistic Wake Vortex Model, WakeNet USA, Boston, MA, 20-21 October.
- 2010 Pruis, M. J., and D. Delisi, Analysis of the Short-Term Variability of Crosswind Profiles, WakeNet3-Europe, Workshop on Short-Term Weather Forecasting for Probabilistic Wake-Vortex Prediction, DLR Oberpfaffenhofen, Germany, 10-11 May.

- 2008 Pruis, M. J., Application of the elastic-decohesion constitutive model to sea-ice in the Beaufort Sea (invited), *Impetus 2008*, St. Petersburg, Russia, 19-22 November.
- 2008 Pruis, M. J., Fast changing environment in the Arctic: Should anyone care? (invited), *Rotary Club of Ellensburg*, Ellensburg, WA, 1 October.
- 2008 Pruis, M. J., Simulating the formation and evolution of sea ice leads in the Beaufort Sea (invited), *Alaska Marine Science Symposium*, Anchorage, AK, 20-24 January.
- 2007 Pruis, M. and M. Coon, A mechanism for increasing ice mass: pushing cold ice into the upper mixed layer of the ocean, *Fall AGU*, San Francisco, CA.
- 2007 Pruis, M., M. Coon, D. Sulsky and R. Kwok, Simulations of sea ice lead formation and evolution, *Fall AGU*, San Francisco, CA.
- 2007 Oltman-Shay, J., M. Pruis and D. Berliner, Argus as a coastal engineering tool – Validation through comparisons with traditional methods (invited), *Argus Workshop 2007*, Corvallis, OR, 29 July – 3 August.
- 2007 Oltman-Shay, J., M. Pruis and D. Berliner, Argus Surveying of Benson Beach: Nearshore changes storm to storm, season to season, and year to year - implications for sediment transport, *Sediment trends in Southwest Washington's nearshore zone: A science-policy workshop*, Ilwaco, WA, 9-10 July.
- 2006 Coon, M., R. Kwok, M. Pruis, G. Levy, H. L. Schreyer, D. Sulsky and L. Toudal, A new sea ice model: pancakes to metrics, *Fall AGU*, San Francisco, CA.
- 2006 Pruis, M. J., M. Coon, The use of RGPS kinematic data to estimate nonlinear sea ice motion, *Fall AGU*, San Francisco, CA.
- 2006 Oltman-Shay, J. and M. Pruis, Argus at the mouth of the Columbia River: Science for decision-making, *American Shore and Beach Preservation Association Fall Conference*, Long Branch, NJ, 9-11 October.
- 2006 Pruis, M. J., Modeling the marginal ice zone (invited), *U.S. National Ice Center Ice Modeling Workshop*, Washington D.C., Suitland, MD, 6-7 September.
- 2006 Coon, M. D., and M. J. Pruis, Lead resolving ice model (invited), *U.S. National Ice Center Ice Modeling Workshop*, Washington D.C., Suitland, MD, 6-7 September.
- 2003 Pruis, M. J., M. Coon, L. Toudal, T. Maksym and G. Levy, Development of a new sea ice model for the marginal ice zone, *SEARCH open science meeting*, Seattle, WA, 27-30 October.
- 2003 Johnson, H. P. and M. J. Pruis, Hydrothermal silica in the North Pacific, *Chapman conference on the role of diatom production and Si flux and burial in the regulation of global cycles*, Proikia, Paros, Greece, 22-26 September.
- 2003 Neuer, S., P. Figueredo, M. Zolotov, R. Greeley, D. Schulze-Makuch, L. Irwin, M. Coon, M. McPhee and M. Pruis, Simulating conditions on Europa's surface: Experiments on the adaptation of sea-ice microorganisms to life at high salinities, low temperature and

- high radiation, *Europa Focus Group*, Arctic Ice Field Conference, Barrow, AK, 24-26 April.
- 2002 Johnson, H. P. and M. J. Pruis, The upper oceanic crust as a global-scale reservoir of hydrothermal fluid, *EOS Trans. Abstracts*, 83 (46).
- 2002 Pruis, M.J. and M.D. Coon, A sea ice ridge analogy for the surface of Europa, *Europa Focus Group Workshop III*, Flagstaff, AZ, 14-15 May.
- 2001 Pruis, M. J., H.P. Johnson, S. Hautala, and I. Garcia-Berdeal, Diffuse heat flux on the Endeavour Seagment, Juan de Fuca Ridge, *EOS Trans. Abstracts*, 82 (46).
- 2001 Pruis, M. J., H.P. Johnson, S. Hautala, I. Garcia-Berdeal and the scientific parties of Thermal Grid 2000 and Thermal Grid 2001. Quantitative estimates of diffuse heat flux in two different environments along a spreading ridge axis, *RIDGE Workshop/Results Symposium on the Endeavour Segment Seafloor Observatory*, Seattle, Sept.
- 2001 Bjorklund, T., M. J. Pruis, H.P. Johnson, S. Hautala and the scientific party of Thermal Grid 2000. High resolution temperature measurements of the rock/water interface in diffuse hydrothermal vents: Endeavour Segment, Juan de Fuca Ridge, *RIDGE Workshop/Results Symposium on the Endeavour Segment Seafloor Observatory*, Seattle, Sept.
- 2001 Pruis, M. J. and M. D. Coon, Examining a deep-sea elevator for life in the ocean on Europa, *Europa Focus Group Workshop II*, Flagstaff, AZ, 7-9 Sept.
- 2001 Coon, M. D. and M. J. Pruis, An ice thickness distribution model for Europa, *Europa Focus Group Workshop II*, Flagstaff, AZ, 7-9 Sept.
- 2000 Pruis, M.J., H.P. Johnson and S. Hautala. Testing models of the crustal fluid reservoir using the response of hydrothermal vents to seafloor loading, *EOS Trans. Abstracts*, 81(46).
- 2000 Gilbert, L. A., H. P. Johnson, D. Yoerger, A. Bowen, J. Howland, M. Pruis, and S. Hautala. High resolution bathymetry of the axial valley, Endeavour Segment, Northern Juan de Fuca Ridge, *EOS Trans. Abstracts*, 81(46).
- 2000 Miller, M. M., K. F. Sprenke, J. H. Anderson, G. W. Adema, T. Benedict, N. Hamm, J. Luchow, and M. Pruis, 5000 years of extreme glacial volume change on Alaska's Juneau Icefield since the thermal maximum and through neoglacial time: A geophysical and paleoclimatic assessment, *EOS Trans. Abstracts*, 81(46).
- 1999 Putrevu, U., J. Booker, J. Oltman-Shay, M. Pruis, M. Horgan, Inverting Edge Wave Measurements to Deduce Beach Topography and Longshore Currents, *EOS Trans. abstracts*, 80 (46).
- 1998 Pruis, M.J. and H.P. Johnson, Evolution of the shape, size and abundance of voids in the upper oceanic crust: Insights from recent seafloor gravity studies, *EOS Trans. abstracts*, 79 (46).

- 1998 Putrevu, U., J. Oltman-Shay, M. Pruis, and J. Booker, Deducing beach topography from edge wave measurements, *EOS Trans. abstracts*, 79 (46).
- 1998 Oltman-Shay, J., F. Smith, J. Secan, P. Ruggiero, M. Pruis, U. Putrevu, G. Kaminsky, D. Echart, R. Bussey, E. Boss, J. Cote and A. Cookson, Infragravity-frequency-band waves and currents on a Washington coast beach, *EOS Trans. abstracts*, 79 (46).
- 1997 Pruis, M.J., H.P. Johnson and M.A. Tivey. Acquisition of oceanic crustal magnetization: in situ sea floor measurements, *EOS Trans. abstracts*, 78 (46), 646.
- 1997 Oltman-Shay, J., U. Putrevu, R. Fraser, M. Pruis and J. Booker. On the deduction of beach topography from edge-wave observations, *EOS Trans. abstracts*, 78 (46), 341.
- 1996 Pruis, M.J. and H.P. Johnson. Time dependent porosity of very young upper oceanic crust from ocean bottom gravity measurements, *EOS Trans. abstracts*, 77 (46), 706.
- 1996 Pruis, M.J. and H.P. Johnson. In situ measurement of the acquisition of crustal magnetization. *Magnetization of Oceanic Crust Conference*, Orcas Island, WA, Oct.
- 1995 Pruis, M.J. and K. L. Tanaka. The Martian Northern Plains did not result from plate tectonics, *Abstracts of Papers Submitted to the Lunar and Planetary Science Conference*, 26 (3), 1147-1148.

Graduate Advisor:

H. Paul Johnson

Dissertation (2004):

“Energy and volume flux into the deep ocean: examining diffuse hydrothermal systems”

Highlights: Developed new techniques for measuring the heat and mass output of diffuse hydrothermal systems on the seafloor; including boundary layer turbulence, direct sampling using titanium probes inserted using gravity coring techniques, development of long-term observatories. Proposed new processes for tidal signature seen in deep-sea hydrothermal effluent. Developed a new 1-dimensional numerical model to examine deep-sea hydrothermal flow.

Master’s Thesis (1998):

“Continuous near-bottom and on-bottom fixed gravity and magnetics of a deep-sea volcano”

Highlights: Used a Bell Aerospace BGM-3 continuous gravimeter and 3-axis Fluxgate magnetometer installed in the deep diving submersible ALVIN to measure the internal structure of new volcanoes on the seafloor. Also used fixed deep-sea magnetometers examine how the magnetization and structure of new volcanoes changes during the first couple of years following an eruption on the seafloor.

Recent collaborators:

Susan Hautala, University of Washington

Ron Kwok, Jet Propulsion Laboratory

Miles McPhee, McPhee Research

Joan Oltman-Shay, NorthWest Research Associates

Buck Schreyer, University of New Mexico

Deborah Sulsky, University of New Mexico

Leif Toudal, Technical University of Denmark